REMARKS

This Amendment amends claims 67-68. Claims 5-12, 16, 19 and 26-75 are pending in the application. Claims 27, 29, 31, 33, 36, 39, 42, 45, 49, 52, 55, 58, 61 and 64 are independent. Claims 49-66 have been withdrawn from consideration.

The Office Action objects to claims 67-75. This Amendment amends claims 67 and 68 in accordance with Examiner Hawranek's suggestion. Applicants respectfully request withdrawal of the objection.

The Office Action rejects claims 5-8, 11-12, 16, 19, 27-48 and 67-75 under 35 U.S.C. §103(a) over Oka in view of Liu et al. in combination with Kuznetsov and Kumomi; claims 9-10 under 35 U.S.C. §103(a) over Oka and Liu et al. in view of Kuznetsov, Kumomi, Yonehara and/or Shibata; and rejects claim 26 under 35 U.S.C. §103(a) over Oka in view of Liu et al. and Kuznetsov and Kumomi. Applicants respectfully traverse these rejections.

The Office Action asserts that Kuznetsov discloses a maximum concentration of 1.5×10^{20} atoms/cm^3. Additionally, during a telephone conference on March 16 with the Examiner, the Examiner asserted that Fig. 3 of Kuznetsov appears to disclose a maximum concentration of 5×10^{19} atoms/cm^3. The Office Action asserts that a range of 5×10^{19}atoms/cm^3 to 0 includes the claimed range of 1×10^{19} atoms/cm^3 or lower. However, none of the applied references teach or suggest the critical nature of the claimed range. The specification of the present application points out that the inventors have performed experiments and studies (page 3, lines 23-25) concerning the method of forming a silicon semiconductor film and that through those experiments it was unexpectedly observed (page 5, line 5) that there may be a catalytic effect for adding a specific concentration of metal such that the amorphous silicon may be crystallized at a lower temperature and within a shorter period of time (page 5, lines 14-23). The Inventors also observed that the

shape of a peak of a raman spectroscopic spectrum becomes different from that of a simple substance of silicon when the concentration of metal is more than 5×10^{19} atoms/cm^3 (page 7, lines 17-20). Further, when concentration is more than 5×10^{19} atoms/cm^3 NiSi is locally produced and the characteristics of the semiconductor device is adversely effected (page 7, lines 22-28).

Additionally, none of the applied references teach or suggest the criticality of the lower limit of the claimed ranges. Specifically, none of the applied references teach or suggest that the temperature for crystallization may be lowered when the concentration of metal is greater than 1×10^{15} atoms/cm^3 as recited in claims 67-75. The specification specifically describes this lower limit as being critical (page 7, lines 22-28). Applicants respectfully request withdrawal of these rejections.

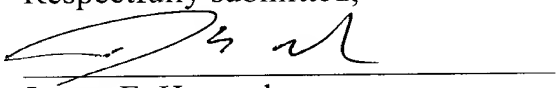
Applicants thank Examiner Hawranek for the courtesies extended to the Applicants attorney during the March 16 telephone conference. During the telephone conference, it was agreed that the December 20 Office Action did not address the assertion within in the October 2 response that the claimed ranges where critical to the operation of the catalytic nature of the concentration of metal within the amorphous silicon upon the rate of crystallization and the required temperature level for the crystallization process. While the Examiner Interview Summary Record indicates that the Applicants have proposed to submit objective evidence of the criticality and/or unexpected results of the claimed ranges, Applicants respectfully submit that the specification adequately provides the necessary evidence that the inventors of the present invention indeed conducted experiments and studied the processes to arrive at the unexpected advantages and also flushed out the critical ranges within which the catalytic nature of the invention functions. Indeed, the entire summary of the invention from page 3 to page 14 detail the extent of these experiments and the amount of study and research conducted to verify the criticality

of the ranges to arrive at the unexpected advantages. Applicants respectfully submit that the specification provides the necessary evidence of the criticality of the claimed ranges and the unexpected advantages provided by these ranges and also that none of the applied references teach either the criticality nor the unexpected advantages and hereby respectfully request withdrawal of the rejections.

In view of the foregoing Amendments and Remarks, and in light of the telephone conference on March 16, Applicants respectfully submit that the application is in condition for allowance. Prompt reconsideration and allowance are earnestly solicited.

Should the Examiner believe that anything further is desirable in order to place the application into better condition for allowance, the Examiner is invited to contact the undersigned attorney at the telephone number listed below.

Respectfully submitted,



James E. Howard
Registration No. 39,715

JEH:dkt
Attorney Docket No.: 740756-1641

Enclosure: Version with markings to show changes made

Nixon Peabody LLP
8180 Greensboro Drive, Suite 800
McLean, Virginia 22102
Telephone: (703) 790-9110
Facsimile: (703) 883-0370

Version with markings to show changes made

67. (Amended) The method according to claim 27 wherein said concentration of said metal in said first region is more than 1 X $10^{[19]15}$ atoms/cm^3.

68. (Amended) The method according to claim 29 wherein said concentration of said metal in said first region is more than 1 X $10^{19]15}$ atoms/cm^3.